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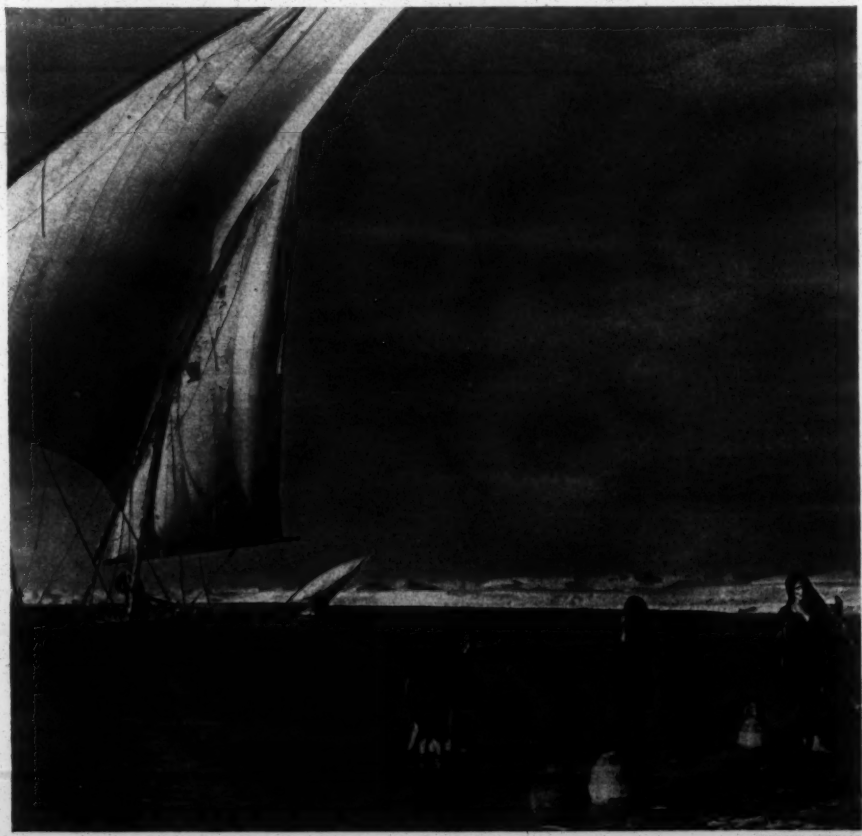
VOLUME XXXI — February 16, 1953 — NUMBER 18

1. Alberta Is Canada's Cinderella Province
2. Shadoof's Creak Is Music to Egyptian Ears
3. Noted Battlefields Attract GI's at Poitiers
4. Scientists Race Floods to Learn Prehistory
5. Typhoon-Swept Yap Clings to Old Traditions



B. ANTHONY STEWART

LIKE SEA BIRDS' WINGS, THE LATEEN SAILS OF A FELUCCA HOVER OVER NILE SHALLOWS WHERE WOMEN OF EGYPT (Bulletin No. 2), IN THE WAY OF BIBLE TIMES, DIP WATER IN EARTHEN JARS

Bulletin No. 1, February 16, 1953

Alberta Is Canada's Cinderella Province

A FABULOUS Cinderella story is unfolding for Canada's Province of Alberta, so fabulous its riches cannot be estimated.

This neighbor of Montana used to be a farm and ranch province. Now the black gold of oil pours out in the midst of farmland. New industries are springing up. A coal reserve of 47 billion tons, one of the world's biggest, awaits development. There are vast forests, salt beds, sulphur, gypsum, gold, an abundance of livestock, and, of course, the bountiful crops.

"Another Texas"

Petroleum experts call Alberta "another Texas." In some respects, the comparison is apt. With an area of 255,285 square miles, the province nearly matches the Lone Star State in size. It is attracting petroleum-chemical plants, such as contribute to Texas's prosperity. Pipe lines for oil and natural gas are fanning out to other provinces.

The amazing march of events began in February, just six years ago. Oil was long known to exist in the province, but no one suspected there was a sea of it until an historic big gusher came in at Leduc, 16 miles south of Edmonton, the capital. Today most major oil companies in the world are drilling in the province.

Reserves in fields already producing are conservatively estimated at two billion barrels. (A barrel is 42 gallons). Not included in this estimate are the extensive oil sands along the Athabaska River in the northern wilds. Geologists think these may contain an additional 100 to 250 billion barrels, the largest reserve known anywhere today.

Less than 20 years ago, Alberta was so deep in debt that it could not meet interest on its bonds or pay its employees. It is a different picture now, because virtually all mineral rights are vested in the government, and money from oil leases and royalties pours into the treasury.

Boom Benefits People

Taxes have been lowered several times. The public debt has been almost halved and a financial nest egg accumulated. In addition, the government has had money to spend on schools, public health, roads, and other improvements. Alberta's 14,000 Indians have benefited; they now have the capital needed for their own programs aimed at economic independence.

There has been a great influx of settlers, pushing Alberta's population near the million mark. This is more than five times the number of Albertans in 1905, when province status was achieved. Since that date, newcomers of British, German, Ukrainian, French, Norwegian, Polish, Dutch, and Italian stock have helped develop the region.

Despite the excitement of oil prosperity, levelheaded Alberta still is mindful of her original resource, good earth that produces fine crops of wheat, rye, oats, and other grain. In the Peace River area, the soil is so rich that an acre yields 70 bushels of wheat, four times the average

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UMI

W. J. OLIVER

MALIGNE LAKE MIRRORS SNOWY PEAKS AND MAJESTIC TREES FOR ALBERTA CAMPERS

Jasper National Park offers many such spectacles of scenic grandeur to visitors. Canada's largest, the preserve is twice the size of Delaware. Indian fur trappers found the area a good hunting ground in bygone days. Today Maligne is a favorite haunt for anglers because it is well stocked with trout. The park has a big-game sanctuary and its peaks include Mt. Edith Cavell, named for the heroic British Army nurse of World War I.

Bulletin No. 2, February 16, 1953

Shadoof's Creak Is Music to Egyptian Ears

IN Egypt, King Farouk has given way to General Naguib, but the national music of the ancient African land is still the song of the *shadoof* and the *sakiya*.

Only in a country where water means life as acutely as it does in Egypt could the shattering squeals given forth by these ancient irrigation devices be called music! When the Nile is in flood it spreads some of the richest soil in the world over the level plains which border it.

When the water reaches its lowest point, this treasure is left to the mercy of a blazing sun beating down from a rainless sky. Shadoof and sakiya rescue it for agriculture.

Hard Work Helps Gravity

The shadoof is the Egyptian's version of the old oaken bucket. A dripping bag or bucket of leather or woven reeds takes the place of the wooden bucket celebrated in Samuel Woodworth's poem. The bag hangs from one end of a horizontal beam set on rough tree crotches for support. A counterweight, usually a gob of sun-dried mud, is stuck to the other end of the beam to balance it.

But gravity, through the counterweight, does only part of the work. Passengers on cruises down the Nile have been impressed with the everlasting bending and straightening up of toiling "fellahin." These Egyptian workers (so called from the Arabic term for "plowmen" or "toilers") lift water from river to field while the beams, squeaking in the tree crotches, cause the music which the shadoof produces. It is also quite usual to see women wade into the shallows and carry water ashore in enormous earthenware jugs (illustration, cover).

When the water needs to be raised not more than about six feet, one shadoof only is necessary. This will bridge the gap between poverty and plenty for the sweating fellah on his farm. But during the period of low water on the Nile it takes four or five stages to bring the water to field level. A shadoof on each level passes the precious fluid to the next highest until the top is reached.

Silence Wakes the Worker

The sakiya employs the principle of the endless chain. Clay jars, fastened to a belt, travel down empty and return full. Patient cattle turn crude cogwheels which drive the belt.

The music of the sakiya comes from the dry, scraping gears. These are not greased for a practical reason: should the ox stop, the unaccustomed silence would waken the fellah (whom the monotony of the sound may have lulled to sleep). His stout stick then starts the machinery again.

When water has to be lifted a very short distance, a device similar to a child's rope swing is used. A scoop with a high back takes the place of the seat. Swung with vigor, it snatches water from the surface of the river and flings it over the thirsty soil.

Compared to the noise of the shadoof and sakiya, this simple swing produces only minor music as it sweeps in and out of the water.

UMI

for the whole country. Over the past 30 years Alberta farmers have won the World Wheat Championship fifteen times.

Snow covers the grainfields now and oil derricks may dot them, but products of the farms and ranges still account for more than half Alberta's income. Processing industries worth millions depend on farm and ranch yield. The 1952 wheat crop was the second largest on record.

Any list of Alberta's assets cannot omit the natural attractions which make it a mecca for tourists and sportsmen. So magnificent is the scenery in the Canadian Rocky Mountains (illustration, inside cover) that the area is likened to "Fifty Switzerlands in One."

Banff and Lake Louise have long been famous as resorts. To near-by Calgary, the province's second-largest city, hundreds of thousands flock for the annual rodeo. Anglers find good fishing in the numerous rivers and lakes. There is big game and small to test the hunter.

Alberta would seem to have almost everything, not forgetting 9,390-foot Mount Eisenhower, named for the victorious general of World War II who was inaugurated last month as President of the United States.

NOTE: Alberta is shown on the National Geographic Society's map of Canada, Alaska & Greenland. Write the Society's headquarters, Washington 6, D. C., for map price list.

See also, "On the Ridgepole of the Rockies," in *The National Geographic Magazine* for June, 1947; and "Columbia Turns on the Power," June, 1941. *(Back issues of the Magazine may be obtained by schools and libraries from the Society's headquarters at a special discounted price of 50¢ a copy, 1946–to date; 90¢, 1930–1945; $1.90, 1913–1929. Earlier issues at varied prices.)*

CANADIAN PACIFIC RAILWAY

THIS MIGHTY ICEFIELD FEEDS STREAMS FOR THREE OCEANS

Athabaska Glacier, which awes these riders, is a tongue of the Columbia Icefield, believed the largest mass of ice south of the Arctic. Estimates are that it covers 150 square miles and is 2,000 feet thick. From it flow streams emptying into the Pacific, Atlantic, and Arctic oceans.

Noted Battlefields Attract GI's at Poitiers

WITHIN easy sight-seeing range of American soldiers assigned to headquarters of the European Base Command at Poitiers in western France lie several of history's greatest battlefields.

Only a few miles west of the city, in Vouillé, Clovis, King of the Franks, defeated Alaric II and his Visigoth hordes in 507 A.D. As a result of this victory, Clovis was able to add to his already extensive empire the kingdom of the Visigoths. Vouillé, in addition to the battlefield, boasts a 12th-century church and castle. Voulon, 18 miles south of Poitiers, disputes Vouillé's claim to having been the scene of this decisive battle, but unquestionably it took place in the immediate vicinity of the ancient city of Poitiers.

Most Famous Battle Fought by Black Prince

Charles Martel, a later ruler of the Franks, added another chapter to the history of Poitiers in 732 when he quelled the last Arab invasion of Europe by defeating the fanatical hordes of Abd-ar-Rahman. This engagement occurred north of Poitiers after the Moorish forces had passed through that city and were advancing northward on the sacred city of Tours (illustration, next page). Moussais-la-Bataille is said to be named for the victory which took place there.

The third historic battle was that which gave Poitiers perhaps its greatest fame. This was the defeat of King John's forces by England's "Black Prince," son of Edward III, in 1356.

The French king was captured, together with his 14-year-old son, Prince Philip, and Poitiers became an English possession for the second time in history. As part of the Duchy of Aquitaine, it had passed to the English Crown in 1152 on the marriage of Henry II to the duke's heiress, Eleanor of Aquitaine. Half a century later, Henry's son, King John, lost the region to Philip II of France.

Site of France's Oldest Christian Structure

Poitiers stands on a roughly triangular plateau at the junction of the Clain and Boivre rivers. The pagan Pictavi who founded it left strange stone dolmens to mark their occupancy. The Romans made it one of their provincial capitals, calling it Limonum. During their occupation, they built an amphitheater that held 52,000 people. Only a century ago, the shortsighted city fathers, expanding Poitiers, destroyed the remains of this arena, which was more than twice the size of that at Nîmes. The latter amphitheater is the best preserved in France today.

Some fifty spires and towers soar skyward from abbeys, convents, and impressive Romanesque churches, indicating the importance of Poitiers as a religious center through the Christian era. In the city is Gaul's oldest Christian monument, La Baptistère Saint Jean, where from the fourth to the seventh century the devout were baptized by immersion in a tank that is still well preserved.

Roman ruins in the vicinity include an aqueduct dating from the first

UMI

The symphony of these ancient machines would be familiar to Cleopatra. Bas-reliefs uncovered by archeologists show the shadoof and sakiya at work irrigating Egypt's fields in her time.

The fellah of today, however, hopes for a new type of music from roaring waters and purring pumps in great modern irrigation projects which Egypt is building to modify the seasonal flow of the Nile. For centuries, the Egyptian farmer has known that the ancient music is the accompaniment to an aching back, and modern hydroelectric devices can alleviate his weariness and increase his crops.

NOTE: Egypt is shown on the Society's maps of Africa and the Arabian Peninsula, and Bible Lands and the Cradle of Western Civilization.

For additional information, see "The Spotlight Swings to Suez," in *The National Geographic Magazine* for January, 1952; "Sinai Sheds New Light on the Bible," March, 1946; "Daily Life in Ancient Egypt," October, 1941 (out of print; refer to your library); "By Felucca Down the Nile," April, 1940; and "Change Comes to Bible Lands," December, 1938.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, January 19, 1953, "Ancient Siwa Revives as Tourist Mecca"; and "Egypt Adds to Ancient and Modern History," October 6, 1952.

KODAK (EGYPT), LTD.

A SUPER-DE-LUXE MODEL OF A SHADOOF DOUBLES THE WATER SUPPLY AND HALVES THE LABOR

Egypt's ancient irrigating device occasionally comes in a two-bucket model. Here a set of cross poles set at each end hold the horizontal bar instead of the simpler tree-crotch support. This firmer frame permits action of two buckets at once, doubling the speed of watering the crops.

Bulletin No. 4, February 16, 1953

Scientists Race Floods to Learn Prehistory

TEAMS of scientists in the southern, western, and southwestern regions of the United States are striving to save household goods and chattels from rising water—not the water of natural floods or spring tides, but that rising behind man-made power and irrigation dams.

No living persons inhabit the homesteads which face inundation. They are old, hundreds and thousands of years old, and the denim-clad archeologists, paleontologists, and geologists who are now engaged in digging in and around them hope to discover material that will solve many of the riddles posed by early life in North America. They hope to learn more of the people, plants, animals and reptiles (illustration, next page), and the land in which they lived.

River Valleys Hold Secrets of Early Man

While a great deal is known of the early inhabitants of Mexico and the lands of Middle America, there is little knowledge available of many of the early Indian tribes of the United States, and there are only scattered records of the prehistoric peoples who preceded them.

Early man showed a tendency to settle near rivers for good fishing, hunting, and farming. Thus river valleys are possible treasure houses of information about his life and times. The Columbia River Basin, for instance, may hold further proof of the Asiatic origin of the Indian if sites found there are similar to others known in Alaska and Canada.

But because of the present great need for flood and drought control, many of the country's valleys are disappearing under waters backed up by dams. To get at them before the record is obliterated, government and private agencies joined forces to form the Inter-Agency Archeological Salvage Program.

In the first six years of its operation, the organization reports that from a total of 3,058 dams scheduled for construction, 236 sites in 25 states have been excavated or surveyed. Five hundred and seventy-five more have been recommended for excavation or further testing.

Must "Make Haste Slowly"

Scientists representing at least six different fields of study are working together at excavation sites. Digging often goes on in the shadow of rising dams, until the water laps almost at the diggers' feet.

Because of the haste necessary to beat the man-made tides, only about 10 per cent of what the scientists discover can be salvaged. But the 10 per cent must cover all phases of life during all the periods of time represented in each area. "The problem," one archeologist has explained, "is to make haste slowly."

When finds are too big and bulky to be removed from the sites or when they are part of cliffs or caves, they must be studied on the spot and records made there.

Careful tracings are made of primitive pictures carved on rock walls. Diagrams are made of house plans and the layouts of ancient villages.

These, with such artifacts as pottery and knives, and bones and fossils,

UMI

or second century, south of the city; and in the heart of the ancient town itself, the remains of a Roman theater.

Poitiers today is an important stop on the Paris-Bordeaux railroad. It is the chief city of the Department of Vienne as well as the seat of a bishopric. Its educational institutions include a university, founded in 1432, with colleges of law, literature, and science; and a noted artillery school.

Poitiers' inhabitants number more than 40,000. Besides trade in the farm produce, wool, and wines of the region, the chief industries include printing, and the manufacture of such useful articles as candles, paint, brushes, and hosiery.

The region round about Poitiers has been called "the granary" and "the garden of France." The fertile valleys of the Loire and its tributaries produce large crops of grain, chiefly wheat. Vegetable patches cover extensive acres. Orchards, vineyards, and cornfields stretch for miles.

NOTE: Poitiers is shown on the Society's map of Western Europe.

For additional information, see "France Farms as War Wages," in *The National Geographic Magazine* for February, 1940; and "Chateau Land—France's Pageant on the Loire," October, 1930.

EMIL P. ALBRECHT

TOURS CATHEDRAL'S TWIN TOWERS ARE A LOIRE VALLEY LANDMARK

Trees of the Square Émile Zola, in the heart of Tours, frame a view of the towers of the cathedral. This edifice, famous for its beautiful stained-glass windows, was erected between the early part of the 13th and the middle of the 16th century. It was dedicated to St. Gatien who brought Christianity to Touraine in the third century. Tours has many points of interest for GI's at Poitiers, who will find it a convenient point for visiting the historic chateaux of the surrounding Loire Valley.

Bulletin No. 5, February 16, 1953

Typhoon-Swept Yap Clings to Old Traditions

TO the bronze-skinned people of the island of Yap in the Caroline group, some 500 miles beyond Guam, an occasional typhoon is almost a routine event. Because this cluster of hilly little isles of coral and volcanic rock lies in the typhoon belt of the western Pacific, it can bear even two such storms with more or less calm.

But when four typhoons in as many months batter the islands, not to mention a tidal wave, it is a little too much. When such a succession of disasters happened, the islanders began to think that nature was taking a mean advantage of them.

Sorcerer Went Too Far

To explain this seeming injustice, the people of Yap worked out what seemed to them a simple reason. According to their story, one of the island chiefs decided his subjects were straying too far from the ways of their ancestors. He therefore ordered his magician to conjure up a little punishment to show them the error of their ways.

The sorcerer didn't "know his strength." His incantations calling for a storm as a mild penalty got completely out of hand. Storms killed him, destroyed most of the food crops and the groves of useful coconut palm trees, and damaged nearly every dwelling on the island.

Yap islanders are an independent people who cling to the customs of their ancestors. To a great extent they have scorned the foreign ways that have been adopted in many other areas of the Pacific. Western customs and costumes are seldom seen on Yap, but the primitive appearance which the islanders present to strangers is misleading.

The fact that the men of Yap still wear loincloths and the women dress in bulky grass skirts does not indicate ignorance or a lack of culture. For centuries they have found their clothes, their dwellings, and their mode of living well adapted to their needs. It suits them and they see no reason why they should change to the manners and customs of the strangers who have controlled them at various times.

A Mixture of Many Pacific Stocks

The Spaniards, Germans, and Japanese who have ruled them in the past have had little apparent effect on the islanders. Now the United States is in control by virtue of a United Nations trusteeship. Each ruling power has made some effort to impress its stamp, but the effects are not at all noticeable.

Many blood strains of the west Pacific are combined in the brown-skinned islanders of Yap. But, unlike many natives of the islands of Micronesia, they show practically no European or Japanese traits.

Natives of Yap dress for comfort in their warm climate. For either sex, clothing above the waist is considered as unfashionable as it is unnecessary. When the Japanese occupied Yap they insisted that the native children dress for school, but the garments were pulled off the moment school ended.

UMI

must be coordinated and catalogued for publication with other observations made at the sites.

When the scientists have this information in hand, they can—unhurried, and at their leisure—give it the thorough study necessary for a true interpretation of its meaning.

NOTE: Areas where scientists are excavating in advance of dam-building may be located on the Society's map of the United States of America.

For further information, see "Seeking the Secret of the Giants," in *The National Geographic Magazine* for September, 1952; "Our Cliff Dwellers of the Mesa Verde," June, 1948; "'Pyramids' of the New World," January, 1948; and "Parade of Life Through the Ages," February, 1942.

HAROLD L. BROOKS

AGES AGO, WHEN NEW MEXICO WAS SWAMPY, THIS GIANT TURTLE CRAWLED THE SOUTHWEST

The 500-pound fossil, head missing, was found near Espanola. More recent finds in the fields of archeology, paleontology, and geology are being made by scientists working in areas soon to be flooded by waters rising behind dams under construction. Fossils—the remains of plants and animals of bygone ages—usually are preserved in ancient rock or hard clay. They are valuable "footnotes to the past," and often help scientists establish links between the life of millions of years ago and that of today.

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The thatch-roofed dwellings of the islanders are set apart from each other, instead of being huddled in crowded villages as they are on so many tropical islands. This is partly due to the desire of the owners for privacy, and partly to the dwindling population.

Banana plants and coconut palms set around the huts supply shade and privacy as well as food. Fish is another staple of Yapese diet. Huge stone disks with center holes are seen propped against many of the palm trees (illustration, below). Contrary to a popular impression, these objects which resemble millstones—or "Lifesavers"—are not "spending money."

Many of the islanders profess Christianity, but local gods and incantations also play an important part in their lives. Incantations are still believed to be essential for such necessities as good fishing and good crops. But magic must be handled carefully lest, like the succession of typhoons, it pass beyond the bounds of reason.

NOTE: Yap is shown in a large-scale inset on the Society's map of the Pacific Ocean which appeared as a supplement to *The National Geographic Magazine*, December, 1952.

For further information, see "Grass-skirted Yap," in *The National Geographic Magazine* for December, 1952; "Pacific Wards of Uncle Sam," July, 1948; "Yap Meets the Yanks," March, 1946; "Hidden Key to the Pacific," June, 1942; and "Mysterious Micronesia," April, 1936.

W. ROBERT MOORE

LIMESTONE DISKS QUARRIED IN THE PALAUS BORDER ROADS THROUGH YAP'S COCONUT PALMS. THESE VARY IN SIZE FROM TWO TO 10 FEET IN DIAMETER AND ARE SYMBOLIC OF COMMUNITY WEALTH